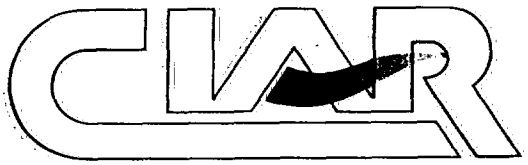

■ CENTER FOR INDOOR AIR RESEARCH

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1992-93 Research Agenda
Request For Applications

Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

MISSION STATEMENT

The mission of the Center for Indoor Air Research is to sponsor high quality research on indoor air issues and to facilitate communication of research findings to the broad scientific community.

SCIENCE ADVISORY BOARD MEMBERS

William S. Cain, Ph.D.
Professor
Epidemiology (Environmental Health) and Psychology, Yale University

Gareth Green, M.D.
Professor
Environmental Health Sciences
Associate Dean
Harvard School of Public Health

Irving Kessler, M.D.
Professor
Department of Epidemiology and Preventive Medicine
University of Maryland School of Medicine

Morton Lippmann, Ph.D.
Vice-Chairman
Department of Environmental Medicine, New York University Medical Center

Genevieve Matanoski, M.D., Dr.P.H.
Professor
Department of Epidemiology
The Johns Hopkins School of Hygiene and Public Health

Demetrios Moschandreas, Ph.D.
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Pritzker Department of Environmental Engineering, Illinois Institute of Technology

Alfred P. Wolf, Ph.D.
Director
Cyclotron - PET Program, Brookhaven National Laboratory

James E. Woods, Jr., Ph.D.
Professor
College of Architecture and Urban Studies
Virginia Polytechnic Institute and State University

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January, 1992

Dear Investigator:

I am pleased to provide you the Center for Indoor Air Research's "Request for Applications" booklet. This package includes information about the Center, the research and review process, procedures for application, the contract management process and the application forms. Also included is our Research Agenda which describes CIAR's research interests.

Applications for January 1, 1993 funding must be received by June 1, 1992. Please complete and return the enclosed checklist along with the contract application materials.

If you have additional questions concerning application procedures, please contact the Center at (410) 684-3777.

Thank you for your interest.

Sincerely,

Max Eisenberg

Max Eisenberg, Ph.D.
Executive Director

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Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

Center for Indoor Air Research

The Center for Indoor Air Research (CIAR) is a non-profit corporation formed in March, 1988 to sponsor high quality research on indoor air issues and to facilitate communication of research findings to the broad scientific community.

The Center has three classes of membership: charter members, regular members and associate members (See Appendix A). The charter members are those corporations that established the Center and are currently providing the majority of the funding. Regular and associate members are those persons or corporations that are interested in indoor air quality research but were not involved in the establishment of the Center. The regular members are represented on the Board of Directors while the associate members are not. The Center is actively seeking additional members in both the regular and associate categories. Additional information on membership can be obtained by contacting the Center.

The Center has established a Science Advisory Board (SAB) which develops the research agenda for approval by the Board of Directors. The SAB recommends proposals for funding after they have been peer reviewed by the Center's pool of peer reviewers. This structure ensures that only high quality research which will contribute to the knowledge bank on indoor air is recommended for funding.

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Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

RESEARCH AND REVIEW PROCESS

The research agenda of the Center for Indoor Air Research is formulated by the Science Advisory Board (SAB), a multi-disciplinary group of individuals with reputations for expertise and scientific leadership in the disciplines relevant to indoor air research. The SAB seeks the best judgments of active research scientists as to what scientific information is missing in the various disciplines before independently ascertaining the research priorities of the Center.

After the SAB establishes the research agenda, the Center announces to the scientific community at large that research applications in response to the agenda are being accepted. The review of proposals and their selection for funding are accomplished in a scientifically rigorous and objective manner. Applications are reviewed first for scientific quality by the applicant's peers selected from the group listed in Appendix B. The SAB, in turn, reviews the applications and peer evaluations, and develops recommendations on the selection of applications. Studies recommended by the SAB are subject to final approval by the Board of Directors.

A staff scientist is assigned to each funded project to continually monitor the investigator's progress and to provide assistance to the investigators in the successful completion of the project.

When a project is completed, the investigator submits a draft final report which is reviewed by the Center and by peer evaluators who assess the scientific quality of the project and evaluate the soundness of conclusions. The investigator is encouraged to publish the work in an independent, peer-reviewed journal for the benefit of the scientific community at large.

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REQUEST FOR RESEARCH APPLICATIONS

INTRODUCTION

The Center for Indoor Air Research was established in 1988, as an independent, non-profit corporation. Its primary purpose is to sponsor scientific and technical research on the sources, transformation and fate of constituents affecting indoor air quality; on factors governing human exposure to, and retention of those constituents; on the effects of those constituents on health, including exposure-response relationships; and on methods of preventing or abating indoor air contaminant concentrations. The research program will be supplemented by periodic conference workshops and commissioned monographs.

A Science Advisory Board has been assembled to assist in the formation and review of the research program. The Advisory Board consists of eminent investigators from a range of disciplines, including environmental engineering and monitoring, chemistry, toxicology, microbiology, epidemiology and biostatistics.

The following research agenda was established at the Center for Indoor Air Research Science Advisory Board (SAB) Workshop, held in June, 1991. It is the product of the combined efforts of the SAB (inside front cover) and Dr. Michael Lebowitz, Professor at the University of Arizona College of Medicine, who presented to the SAB his best judgment of the research needs in respiratory science.

Research topics of major interest to the Center are described in the section that follows. Individuals who intend to apply for funding are encouraged first to submit a letter of intent, two to three pages in length, indicating the research objectives, key elements of the experimental design and methods, estimated time required and approximate direct and indirect costs. ***The letter should be addressed to:***

Center for Indoor Air Research
1099 Winterson Road, Suite 280
Linthicum, Maryland 21090

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Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

RESEARCH AGENDA

In the research agenda that follows, the Center's priorities and specific requests for application are presented. These represent the Center's best judgment on currently important research problems, but the agenda is by no means exhaustive. As stated in the Introduction, any proposal that is consistent with the Center's purpose will be considered. Our objective in presenting priorities and research topics is to stimulate researchers to focus on problems related to indoor air quality (IAQ).

The research needs that follow are grouped according to **sources investigations**, **exposure/dose assessment**, **health effects**, **perception** of IAQ, and **engineering control strategies** for IAQ. This collection of topics represents one general approach to indoor air quality research. Numerous indoor air contaminants warrant investigation in terms of their fate and transport in the indoor environment, the forms and quantities in which they present themselves to exposed individuals, the dose actually delivered to a target (e.g., individual, organ, cell), engineering strategies to reduce their levels, and the perception of indoor air quality in the presence and absence of the contaminants. Some contaminants of interest are volatile organic compounds (VOCs), oxidants, environmental tobacco smoke (ETS), biological aerosols (aeroallergens and aeropathogens), and pesticides. CIAR does not plan to support research on asbestos and radon because other organizations already fund large efforts on these topics.

Indoor air quality is "the nature of air that affects the health and well-being of occupants" where, according to the World Health Organization, "health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity." CIAR is interested in all relevant chemistry, physics, control strategies for, health effects caused or aggravated by, and psychosocial factors influencing the perception of indoor air quality. Due to the interdisciplinary nature of indoor air research, most projects will encompass more than one of these areas. CIAR, therefore, encourages interdepartmental collaborations and joint projects whenever they serve to enhance the interpretation and evaluation of results or to strengthen the validity of conclusions.

SOURCES

Myriad substances in indoor air have potential to affect health. The sources are many (e.g., outdoor air, people and their activities such as cooking, consumer products including pesticides, heating and cooling systems, building materials, electronic equipment), and distributions of sources and chemicals vary among indoor environments. For example, certain chemicals might be added to heating/cooling systems to exert a biocidal or

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preservative effect. The fate and effects of such known-source agents have not been studied extensively. Constituents such as volatile organic compounds, carbon monoxide and nitrogen oxides are being studied within risk assessment frameworks as toxicologically-significant compounds; however, much work remains to be done in characterizing distributions of various agents in specific environments related to sources and assessing their impact on human health.

CIAR IS INTERESTED IN CREATIVE PROPOSALS TO:

- Develop methods to characterize and quantify source emissions. Research in this area could include biologically-based means of source characterization and product screening, such as human irritation and odor assays, as well as development/improvement of chemical analytical methods.

- Investigate the transport and environmental fate of indoor air contaminants, particularly via sinks. This work will elucidate indoor air chemistry, and is important in determining concentrations for short and long-term exposure estimates.

- Develop and validate models to relate source emissions, fate, and transport.

Numerous biological agents in indoor air may cause human disease, including immunological disorders and respiratory infections. The most common biological agents found in indoor environments are bacteria, viruses, fungal spores, algae, arthropod fragments and droppings, and animal dander. Proliferation of microorganisms is dependent on moisture level and temperature. These requirements for growth are often provided by heating and air conditioning systems, and humidifiers.

RESEARCH PROPOSALS ARE REQUESTED ON THE FOLLOWING:

- Development of sampling methods amenable to standardization for the characterization of microorganism concentrations in the indoor environment.

- Characterization of the size-segregated distribution of specific antigens in various indoor environments. Attention should be paid to factors influencing the distribution of the antigen in settled dust and as airborne particles.

The air in virtually all indoor environments is a complex mixture of low levels of both reactive and unreactive species which may interact chemically or physically in a dynamic equilibrium between gaseous and particulate phases. The physical and chemical natures of the species

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themselves as well as those of the surrounding environment could affect the composition of the air to which an occupant is exposed. For example, does the presence of moisture lead to chemical reactions with NO_2 resulting in formation of acids? How and to what extent do different types of building materials and surfaces influence the fate of indoor contaminants?

- Elucidate the dynamics of complex physico-chemical mixtures typical of indoor environments.

EXPOSURE ASSESSMENT/DOSIMETRY

The estimates of exposure and internal dose are critical factors in the reliability of studies to determine the health consequences of exposures. There are two critical issues in exposure-dose relationships: the effect of aerodynamic respiratory tract defenses in altering the quantity and distribution of the exposure to achieve a tissue dose, and measurement of actual internal dose. The complex particle-gas composition of indoor air contaminants has an important effect on the pulmonary distribution of the inhaled exposure.

Measurements from site-specific and personal monitoring, including biomarker measurements, are more reliable than self-reported history of exposure. In epidemiological studies, inaccurate reports of exposure history introduce misclassification bias. In field studies, the use of inaccurate estimates of exposure can lead to variable, unreliable dose-response data. Appropriate modeling may estimate dose from exposure. Biomarkers can be useful in studying tissue injury and to determine dose from the low levels of exposure common indoors.

APPLICATIONS ARE REQUESTED FOR THE FOLLOWING:

- Clarification of the relationship between exposure and dosimetry by conducting studies to improve the use of biomarkers together with exposure monitoring and health effects. This effort would involve improvements in pharmacokinetic modeling as well as methods development for exposure research.

Particular areas in which there are limited data:

- long-term area monitoring and area monitoring for specific building types;
- personal monitoring in non-industrial occupations and in high risk groups;
- time-activity profiles in exposure studies.

- Development of unique, new biomarkers with the sensitivity and specificity to be useful in studying injury in both animals and humans.

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- Development of bioassays for detection of proteases, oxidants, endotoxins, and other markers of biological response for studying mechanisms of mutagenesis and teratogenesis.
- Investigation of the use of polyclonal antibodies for screening in exposure-dose studies.
- Development and validation of models to predict dose and allow for extrapolation between animals and humans.

HEALTH EFFECTS/RESPONSES

Low levels of airborne species may mediate lung injury by effects related to cumulative dose or long-term dose rather than peak dose. This concept is well established for lead, where total dose is as important as dose pattern. The strong oxidant, ozone, can cause lung injury at levels commonly encountered in polluted environments. Although primarily generated outdoors, ozone leaks into the indoor environment, and is produced indoors by business machines and electronic equipment.

Although there is growing agreement regarding the techniques used to measure indoor contaminants, there remains the problem of whether point or time-weighted measures are most meaningful. Given a specific indoor environment with a characterizable distribution of airborne substances, do measureable health effects relate to cumulative, chronic, low-level concentrations, to acute peak concentrations, and/or to synergistic effects between substances?

***CIAR** IS INTERESTED IN CONSIDERING CREATIVE PROPOSALS TO:*

- Investigate the effects of long-term steady exposures to non-peak or low levels of indoor contaminants in order to determine whether or not realistic indoor levels of these chemicals contribute to overall adverse health effects.

While many constituents have been identified in indoor air, little is known about the changes that occur in the environment and the mechanisms by which they occur. The fate of single species and their resulting impacts on health could vary greatly in different complex environments. For example, does the presence of ozone, NO_2, or an aldehyde alter the clearance of particulate matter? Does the presence of airborne oxidants or inorganic complexes cause changes in other components of indoor air, thereby changing reactive potentials with target cells? Does the presence of an airborne contaminant or reaction intermediate alter the tissue dose and pulmonary responses to other indoor air contaminants?

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CIAR WILL CONSIDER CREATIVE PROPOSALS TO:

•Elucidate the health responses of interactive, low-level, complex exposures.

Studies of the relationship between indoor air contaminants and precisely defined clinical diseases are encouraged. Health effect/response questions of interest to CIAR include:

-Do inhaled indoor contaminants impair cardiovascular performance and contribute to the incidence of angina and myocardial infarction?

-Do inhaled indoor contaminants initiate or aggravate bronchial hyperreactivity in asthmatics and/or the normal population?

-Do inhaled indoor contaminants affect resistance to respiratory infection?

-Do inhaled indoor contaminants affect prenatal and perinatal development?

CIAR REQUESTS APPLICATIONS TO:

•Perform animal, field, and laboratory studies to determine the effects of indoor contaminants on:

-cardiovascular function
-morphometry of the lung
-pulmonary function, bronchial responsiveness
-immune system status and function

•Investigate host susceptibility factors for effects due to inhalation of indoor contaminants.

CIAR IS PARTICULARLY INTERESTED IN THE LONG-TERM CONSEQUENCES OF LOW LEVEL EXPOSURES.

Biological agents may cause allergenic or pathogenic responses. Indoor allergens, including those present in animal dander and arthropod fragments and droppings, appear to be ubiquitous. Virtually all homes studied, whether or not pets have been present, have exhibited allergens. Such allergens are risk factors in both the development of asthma and provocation of acute asthmatic attacks. Avoidance of the allergens has been associated with improvement in the clinical status of asthma. The extent to which the risk from exposure to specific allergens is determined by

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their aerodynamic characteristics and airborne concentrations is uncertain. A variety of microorganisms including fungi, bacteria, nematodes and amoebae have been implicated as producers of sensitizing antigens responsible for the development of immunologically mediated disease such as hypersensitivity pneumonitis. Both acute and chronic forms of this disease may result from exposure to indoor antigens. Elevated humidity and moist surfaces promote the growth of the parent organisms. Little is known about the overall prevalence and incidence of hypersensitivity pneumonitis. The role of aeropathogens in inducing allergenic rather than pathogenic responses is an area of interest to the Center.

- Conduct highly-focused studies of aeropathogens (endogenous bacterial and fungal flora found in specific environments) which induce allergenic rather than pathogenic responses. Proposed studies in this area should be promising with respect to yielding productive, new results.

- Relate such health responses to indicators of host susceptibility.

- Develop immunological and biochemical markers that best characterize susceptibility and response.

PERCEPTION OF IAQ

A basic objective of environmental control is to provide for the comfort and health of occupants. Investigators have not always been able to identify specific contaminants responsible for reported health complaints. The most prevalent of these complaints include eye, nose, and throat irritation. While considerable progress has been made in the development of technology to measure contaminant concentrations, greater effort is needed in quantifying human responses to indoor air environments. Studies to date have shown that worker health in office buildings, for example, is influenced by individual, perceptual, psychosocial, and psychophysical factors.

CIAR REQUESTS APPLICATIONS FOR RESEARCH TO:

- Elucidate the relationship among disorders expressed by occupants in buildings and the importance of perception. Determine the baseline rates of symptom reporting under various, well-documented circumstances. This research would most likely involve the development of improved sampling strategies for surveying building occupants and improved self-reporting measures, interview techniques, and other approaches to assess occupants' health

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problems.

- Develop convenient, objective ways, based on physiological or biochemical measurements, to assess irritation and to validate symptoms of irritation. Improve the sensitivity of existing indices of eye, throat, and nasal irritation.

- Explore the basis for individual and group differences in perceptual sensitivity and annoyance to indoor contaminants. Relevant factors could include age, sex, and personal history of smoking behavior, allergy, and respiratory infection.

- Develop and validate a predictive human structure-activity model for irritants. Explore the potential for extrapolating the existing structure-activity data for irritants in animals to humans.

ENGINEERING CONTROL OF IAQ

The decrease of indoor contaminants most probably will lead to reduction of adverse health effects. The choice of an engineering control strategy depends strongly on the psychosocial and psychophysical influences described above as well as the measurable environmental contaminant concentrations. Therefore, development of "healthy building characteristics" involves knowledge of both the physical environment and occupant responses.

APPLICATIONS ARE REQUESTED FOR:

- Developing engineering strategies to control either indoor comfort parameters or indoor air quality parameters, or both. Strategies that enhance the welfare of occupants (comfort parameters) and their health (indoor air parameters) are preferred to controls that address just one or the other.

- Developing engineering control strategies to reduce occupant exposures to indoor air contaminants in office buildings and in residences. Develop protocols to assess the efficiency of each proposed strategy.

- Developing criteria and standards for the design of spaces to be occupied and for design of control systems, to minimize or mitigate indoor air quality problems.

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APPLICATION PROCESS

LETTER OF INTENT: CIAR requests submission of a two to three page letter of intent, including a synopsis of the proposed research with reference to the project's specific goal(s), the general approach to be used, identification of all participating institutions and an estimate of the total monies that will be requested. These letters will be used to plan the proposal review process. The letter of intent is not binding on CIAR or the applicant. This letter should be received no later than thirty (30) days prior to the deadline for submitting applications, at the following address:

Center for Indoor Air Research
1099 Winterson Road, Suite 280
Linthicum, Maryland 21090

CIAR will notify the applicant if a full application is not warranted.

FORMAT: Applications must be submitted on the attached "Application for CIAR Research Contract". Investigators should review the Application for CIAR Research Contract General Information and Instructions found in this booklet. Inquiries regarding application procedures and review procedures may be directed to the Center at the above address or by calling (410) 684-3777. If two applications are interdependent or closely related, they should be appropriately cross-referenced in the project plan.

TEN COPIES OF THE ABSTRACT AND TEN (ORIGINAL AND NINE) COPIES OF THE APPLICATION (INCLUDING ABSTRACT) ARE NEEDED BY CIAR FOR THE REVIEW PROCESS.

EACH COPY OF THE APPLICATION, EXCEPT THE ORIGINAL, SHOULD BE PLACED IN A BINDER WITH A LABEL CONTAINING THE TITLE OF THE PROPOSAL AND THE PRINCIPAL INVESTIGATOR'S NAME.

DEADLINES: *Applications for January, 1993 funding must reach the office of the Center for Indoor Air Research by June 1, 1992. Proposals not meeting this deadline will be held for the next funding cycle.*

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MANAGEMENT OF RESEARCH CONTRACTS

RESEARCH AGREEMENTS

The Center for Indoor Air Research awards contracts, renewable annually for the number of years approved by the Board of Directors if work is progressing satisfactorily. The Research Contract has been designed to maximize the integrity of the scientific process while providing needed protections and meeting applicable regulations. Proposals and any addenda or modifications will be appended and made part of the contract.

PROGRESS REPORTS

Investigators are required to submit progress reports at five months and ten months of each contract year, except for the last year of the project, when the final report is substituted for the usual ten-month report. These reports are reviewed by the project monitor.

The basic objective of the five-month report is to indicate how much progress has been made in the development of experimental procedures, which objectives have been completed, and what problems, if any, have arisen. The ten-month report is actually a combined progress report and renewal application for the next year's funding. CIAR's decision regarding renewal of the contract is based upon the information provided by the investigator in this report. The ten-month report should provide a detailed account of experimental results obtained during the funding period, as well as a discussion of specific objectives for the coming year and a budget.

SITE VISITS

CIAR staff (project monitor) usually conducts site visits to the laboratories of its funded investigators during the project period. The purpose of these visits is to evaluate the status of the project, and to provide an opportunity for an exchange of ideas between the investigator and CIAR scientists.

FINAL REPORT

As part of the research project, the investigator prepares a final report which describes the study and its findings. The investigator's draft final report is reviewed by the project monitor and by peers who represent a broad range of relevant experience. The objective of the CIAR review process is to ensure that the Investigator's Report is complete,

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precise, and understandable. The comments of the peer reviewers are sent to the investigator, who has an opportunity to respond to these comments and, if necessary, to revise the report. Guidelines for the preparation of final reports to CIAR appear in Appendix C.

PUBLICATIONS

It is the policy of the Center to strongly encourage investigators to publish results of research conducted under CIAR funding in the open scientific literature. The following statement, acknowledging CIAR support, should appear in all publications resulting from work funded by CIAR:

"Research described in this article was supported (in part) by the Center for Indoor Air Research."

Original reprints of all journal articles, copies of abstracts, and review articles describing CIAR-funded research should be sent to :

Center for Indoor Air Research
1099 Winterson Road, Suite 280
Linthicum, Maryland 21090

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CONTRACT ADMINISTRATION POLICY

Payments will be made quarterly to the institution where the research is being conducted. A payment schedule other than quarterly must be requested and approved by the Center prior to commencement of a contract. Payments are made upon receipt of an invoice from the institution.

- It is the Center's policy to permit quarterly billing of 22.5% of the total contract less equipment. Ten percent of the total contract amount is withheld pending receipt and acceptance of the ten-month/final report by the Center. Equipment should be invoiced in the quarter in which it is purchased.

- Contracts may not be transferred from one institution to another due to a change in affiliation by principal investigator without express permission of the Center.

- A Contract may be terminated prior to normal expiration date by the contractor upon notification to the Center with a statement of reasons for termination.

- Unexpended funds shall be returned to the Center for Indoor Air Research either upon expiration or termination of the project.

- Budgets are presumed accurate at the time of award; however, up to 20% of the funds may be reapportioned among all categories, except for travel, without prior approval. If, for any unforseen reasons, additional funds or reapportionments exceeding 20% are required, such requests will be considered by the Center upon receipt of a complete statement of reasons for such change. **PLEASE NOTE:** If funds are reapportioned into category (e), equipment, it will result in a subsequent reduction in category (i), indirect costs, and thus, a reduction in the total project award.

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Source: https://www.industrydocuments.ucsf.edu/docs/xxxx

APPLICATION FOR CIAR RESEARCH CONTRACT

GENERAL INFORMATION AND INSTRUCTIONS

SUBMISSION OF APPLICATIONS

Complete applications received by the following deadline will be reviewed as indicated:

Applications Received by
June 1st
Funding Date
January 1st

Submit the original and nine additional copies. If photographs are included, send one original set. Submit ten additional copies of the Research Abstract form.

Append as much material as required. Type, single space, using 8 1/2" x 11" width paper and label each sheet with the name of the Principal Investigator in the upper right hand corner. Number each page consecutively beginning with page 10. DO NOT insert pages between pages F1 and F6.

Investigators will receive written acknowledgement of receipt of the application.

RESEARCH PLAN

8. Preliminary Studies

Critically evaluate existing knowledge pertinent to the application with reference to the key literature. Provide an account of the principal investigator/program director's preliminary studies pertinent to the application and/or any other information that will help to establish the experience and competence of the investigator to pursue the proposed project.

9. Experimental Design and Methods

Outline the experimental design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed, and interpreted. Include a description of the statistical methods to be used for analysis and interpretation of the data. Describe the proposed statistical procedures with sufficient detail to allow evaluation by a statistical reviewer. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. Provide a tentative sequence or timetable for the investigation (i.e., a columnar or graphical representation of your schedule for completion of tasks). Point out any procedures, situations, or materials that may be hazardous to personnel and the precautions to be exercised. Provide a list of literature you cited in your application.

11. Other Support

List all currently active and pending support for all key personnel involved in this proposal. Include the source of support, percentage of appointment, dates of project period, a brief description of the project and whether it overlaps, duplicates, replaces, or supplements this proposed work in any way.

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Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

12. Budget

Cost Data

Provide sufficient detail and analysis to assure the Center that the proposed costs are reasonable and that adequate accounting procedures will be used. CIAR has no specific limitation on the budgets of research proposals. Most contracts are expected to be in the range of $50,000 to $200,000 per year, including overhead. Projects requiring larger budgets must have exceptional promise for developing important methods or information for understanding indoor air quality.

Personnel

List the names and positions of all applicant organization personnel involved in the project for which salaries are requested. Note those which are considered essential to the project. Estimate the percentage of time or effort on the project for professional personnel and non-professional personnel. List the dollar amounts separately for each individual for salary and fringe benefits. Fringe benefits may be requested to the extent that they are treated consistently by the applying organization as a direct cost to all sponsors.

Consultant Costs

Consultant service should be explained by indicating the specific area in which such service is to be used. Identify the contemplated consultants. State the number of days of such services estimated to be required and the consultant's quoted rate per day.

Equipment

If special-purpose equipment is being proposed, provide a description of the item(s) and details of the proposed cost. If fabrication by the applicant is contemplated, include details of material, labor, and overhead.

Alterations and Renovations

If the costs of essential alterations of facilities, including repairs, painting, removal or installation of partitions, shielding, or air conditioning, are requested, itemize them by category and justify them fully.

Supplies and Other Expenses

All supplies and other expenses should be itemized in sufficient detail to allow reviewers to understand the major categories of expenditures (i.e., animals, glassware, media chemicals, as well as publication costs, page charges, and books, listed by category and unit cost). Itemize and justify such items as patient travel and per diem costs, rentals, leases, and computer costs. Unusually expensive items for special processes should be separately identified by quantity and price and the use or application thoroughly explained in the project plan. Each individual expense item must be categorized as supplies or other expenses according to the practices of the accounting office of your institution.

Travel Expenses

Indicate the estimated number of trips required, destination, reason for travel, and cost. Identify and support any other special transportation costs attributable to the

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Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

performance of this project. CIAR pays for foreign travel only if it is approved in advance of the trip.

Subcontracts

Itemize and enter a total for these costs. Describe and justify all appropriate costs for services purchased for, or associated with, third parties, including applicable indirect costs.

Indirect Costs

Indirect costs are limited to a maximum of 25 percent.

Human Subjects

The Center requires that Institutional Review Board approval for any procedures involving human subjects must be submitted with the application.

Laboratory Animals

The Center endorses the NIH policies on the care and use of laboratory animals, and requires that any proposed experiment involving the use of experimental animals be approved by the Institutional Animal Care and Use Committee at the investigator's institution. Documentation of approval by the local animal care committee will be required.

Research Abstract

A concise, descriptive summary of the project must be submitted with the application. A form is provided for this purpose.

Completeness to Applications

Provide all information requested. The signature and typed names of the institutional officer and principal investigator must be on the application.

Notification After Review of Application

Investigators will be notified, in writing, of the decision on their proposal.

Mailing Instructions

Include nine copies and an original of each and every part of the application, plus ten additional copies of the Research Abstract form.

NOTE: Each of the nine copies must be placed in a binder with a label containing the title of the application and the name of the principal investigator. Mail the application to:

Center for Indoor Air Research
1099 Winterson Road, Suite 280
Linthicum, Maryland 21090

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Source: https://www.industrydocuments.ucsf.edu/docs/mgkm0000

APPENDIX A

CIAR MEMBERSHIP

CHARTER MEMBERS

PHILIP MORRIS U.S.A.
R.J. REYNOLDS TOBACCO COMPANY
LORILLARD CORPORATION

REGULAR MEMBERS

HOECHST CELANESE
MEAD PAPER

ASSOCIATE MEMBERS

Consolidated Safety Services, Inc.

Design Building Systems

Ecusta, Division of PH Glatfelter Company

ENV Services, Inc.

Quest International Flavors, USA

Shorewood Packaging

Thiele Engdahl, Ink Manufacturers

United Air Specialists

Universal Corporation

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Source: https://www.industrydocuments.ucsf.edu/docs/mqkm0000

APPENDIX B

CIAR PEER REVIEWERS

Gerald Akland
U.S. EPA

Steven D. Aust
Utah State University

Edward H. Bergofsky
State University of New York

Malcolm N. Blumenthal
University of Minnesota

Terry Brennan
Camroden Associates

Klaus Brunnemann
American Health Foundation

Harriet Burge
University of Michigan Medical Center

Gary R. Burleson
U.S. EPA

Robert Burrell
West Virginia University Medical Center

Robert Bush
University of Wisconsin Hospital

Neal Castagnoli, Jr.
Virginia Tech

Jeffrey Cheek
University of California-Davis

Theodore Colton
Boston University School of Public Health

Emanuela Corsini
NIEHS

Daniel L. Costa
U.S. EPA

Ron Daniele
Hospital of University of Pennsylvania

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APPENDIX C

GUIDELINES FOR FINAL REPORT TO CIAR

The provision of the final report to CIAR is a major contractual responsibility of the CIAR-sponsored principal investigator. It is a comprehensive account to the funding organization of all work accomplished with monies supplied by the organization toward the objectives and specific aims set out in the approved version of the investigators' proposal.

THE FINAL REPORT SHOULD CONTAIN:

-A description of the original objectives and intentions, the rationale for the objectives, and reasons for research redirections.

-A complete data report including tables and graphs, and descriptions of methodologies used to obtain the data.

-Interpretive results. That is, how was the data evaluated and what do they mean?

-Principal Investigator's summary and conclusions.

-If applicable, brief suggestions for specific future research aims directly related to the stated objectives.

-A comprehensive list of all abstracts, oral presentations, and journal manuscripts (submitted, in press, and published) which resulted from CIAR-supported work. Please include reprints, preferably originals, for any published works acknowledging CIAR support not already sent to CIAR.

The final report is a technical document subject to peer review for scientific clarity and soundness and, therefore, should communicate the project objectives, design, and conclusions well. The final report should not contain new proposals whether or not related to the work reported therein.

Adherence to these guidelines will facilitate a timely final report approval, disbursement of withheld dollars, and contract termination.

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The Center for Indoor Air Research wishes to acknowledge the assistance of the following:

The Health Effects Institute (HEI) for sharing their Request for Application and mailing list. Portions of this RFA were based on the application procedures and administrative policies developed by HEI. Our use of their material recognizes the considerable efforts they have made to produce an effective application and administrative policy that meets the needs of both the contracting agency and the researchers. Use of this material does not imply, nor is there any association between our two organizations;

The U.S. Department of Health and Human Services, as portions of the application forms and instructions were modeled on the Grant Application Form PHS 39.

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RESEARCH ABSTRACT

Title of Project:

Investigator(s):

Institution:

ABSTRACT: In the space below, please provide a descriptive summary of your proposed research project.

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Signature, Principal Investigator

Date

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CENTER FOR INDOOR AIR RESEARCH
1099 WINTERSON ROAD SUITE 280 LINTHICUM, MD. 21090
(410) 684-3777 FAX (410) 684-3729

APPLICATION FOR RESEARCH CONTRACT

1. PRINCIPAL INVESTIGATOR. NAME, TITLE, TELEPHONE # AND MAILING ADDRESS.

(A) _____ NAME
(B) _____ TITLE
(C) _____ TELEPHONE #/ FAX #

(D) _____ DEPARTMENT
(E) _____ INSTITUTION

(F) _____ MAILING ADDRESS
(G) _____ STATE/ZIP

2. PROJECT TITLE.

3. KEY WORDS. PLEASE PROVIDE THREE (3) KEY WORDS WHICH WILL BE USED AS REFERENCE HEADINGS.

4. INSTITUTION. NAME AND ADDRESS OF INSTITUTION RESPONSIBLE AND ACCOUNTABLE FOR DISPOSITION OF FUNDS AWARDED ON THE BASIS OF THIS APPLICATION.

(A) _____ INSTITUTION
(B) _____ STREET ADDRESS

(C) _____ CITY
(D) _____ STATE/ZIP

5. LOCATION. LIST LOCATION WHERE RESEARCH WILL BE CONDUCTED *IF OTHER THAN INSTITUTION IDENTIFIED IN #4 ABOVE.*

(A)

(B)

6. INCLUSIVE DATES AND TOTAL COSTS OF THIS SPECIFIC PROJECT RELATED TO EACH 12 MONTH PERIOD IF MORE THAN ONE YEAR IS REQUIRED TO COMPLETE PROJECT. SUMMARIZE FROM BUDGET PAGE, ITEM 12(J). IT MUST BE UNDERSTOOD THAT AWARDS FOR 2ND AND 3RD PERIODS ARE DEPENDENT ON CENTER APPROVAL OF CONTINUATION APPLICATION.

	INCLUSIVE DATE		TOTAL COST
(A) 1ST 12 MONTH PERIOD	_____	THRU _____	$ _____
(B) 2ND 12 MONTH PERIOD IF REQUIRED	_____	THRU _____	$ _____
(C) 3RD 12 MONTH PERIOD IF REQUIRED	_____	THRU _____	$ _____

7. INSTITUTIONAL OFFICER. NAME, TITLE AND TELEPHONE NUMBER OF INDIVIDUAL AUTHORIZED TO SIGN FOR THE INSTITUTION IDENTIFIED IN #4 ABOVE. IT IS UNDERSTOOD THAT THE OFFICER, IN APPLYING FOR A CONTRACT, HAS READ AND FOUND ACCEPTABLE THE CENTER'S MANAGEMENT OF RESEARCH CONTRACTS AND CONTRACT ADMINISTRATION POLICY.

(A) _____ NAME
(B) _____ TITLE
(C) _____ TELEPHONE
(D) _____ SIGNATURE OF INSTITUTIONAL OFFICER
(E) _____ DATE

8. PRELIMINARY STUDIES*.
(A) FEASIBILITY OF PROPOSED RESEARCH
(B) QUALIFICATIONS OF INVESTIGATOR

9. EXPERIMENTAL PLAN*.
(A) DESIGN
(B) METHODS
(C) ANALYSIS OF DATA
(D) INTERPRETATION OF RESULTS
(E) TIMETABLE FOR THE INVESTIGATION
(F) LITERATURE CITED

10. AVAILABLE FACILITIES AND RESOURCES.

11. OTHER SUPPORT

* APPEND AS MUCH MATERIAL AS REQUIRED. TYPE, SINGLE SPACE, USE 8-1/2" X 11" WHITE PAPER AND LABEL EACH SHEET WITH NAME OF THE PRINCIPAL INVESTIGATOR IN THE UPPER RIGHT HAND CORNER AND PAGE NUMBER AT THE BOTTOM. CONSECUTIVELY NUMBER EACH ADDENDUM BEGINNING WITH PAGE 5. DO NOT INSERT PAGES BETWEEN PAGES 1 AND 6, E.G., 2A, 2B, 3A, ETC. INCLUDE NINE COPIES AND AN ORIGINAL. IF SENDING PHOTOGRAPHS, INCLUDE 2 ORIGINAL SETS. **NOTE: EACH OF THE NINE COPIES *MUST* BE PLACED IN A BINDER PER MAILING INSTRUCTIONS.**

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12.BUDGET. Detailed specific needs for the first 12-month period. Estimate category sub-totals for 2nd and 3rd periods, if required. Append justifications.

(a) Salaries, List personnel by name and title. Indicate individuals % time to be spent on this project.	$ 1st period	$ 2nd period	$ 3rd period
% Professional:			
% Technical:			
% Other:			
Fringe benefits payable at institution's rate of %			
Category (a) Sub-Total			
(b) Consultants (per diem, travel & expenses):			
Category (b) Sub-Total			
(c) Supplies & Expense: Consumables (by category)			
Animals and related costs			
Other expenses (itemize)			
Category (c) Sub-Total			
(d) Travel Expenses:			
Category (d) Sub-Total			
(e) Alterations and Renovations			
Category (e) Sub-Total			
(f) Sub-contracts			
Category (f) Sub-Total			
(g) Equipment			
Category (g) Sub-Total			
(h) TOTAL DIRECT COSTS			
(i) Indirect costs not to exceed 25% of the sum of (a) thru (f):			
(j) TOTAL PROJECT COSTS			

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13. BIOGRAPHICAL SKETCH of all professional personnel listed in 12(a). Append. Please include the following: Name, title, education, scientific field, major research interest, research and/or professional experience and publications. (Limit list of publications to the 20 most important and/or relevant.)

14. a) Are HUMAN SUBJECTS to be used in this research? _____ Yes _____ No
If yes, attach Institutional Review Board approval for procedures involving human subjects.

b) Are LABORATORY ANIMALS to be used in this research? _____ Yes _____ No
If yes, attach Institutional Animal Care and Use Committee approval for procedures involving animals.

15. SIGNATURE OF PRINCIPAL INVESTIGATOR: It is understood that the applicant in applying for a Contract has read and found acceptable the Statements of Policy and Terms Under Which Project Contracts Are Made appearing in the application package.

_____

Signature of Principal Investigator Date

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